

### **REMARKS**

Reconsideration is respectfully requested in view of the foregoing amendments and the following remarks. The various grounds of rejection and objection are traversed.

Applicant respectfully requests reconsideration in view of the foregoing amendments and the following remarks. Applicant has endeavoured to respond to each of the issues raised by the Examiner so as to advance the prosecution of the application to allowance.

Applicant has amended claims 1 and 3, and cancelled claims 2 to 4, without prejudice. The amendments to the claims are fully supported in the specification as originally filed.

By this amendment, the spelling of “decarbonization” in claim 1 has been corrected. Accordingly, the objection should be withdrawn.

The presently pending claims are 1, 3, 5 and 6.

It is respectfully submitted that currently amended claims 1 and 3 serve to overcome the rejection of claims 1-6 under 35 USC § 103(a) as being unpatentable over Szczesniewski et al. (US 6358870 B1) in view of Bair (U.S. Patent No. 2220750). This rejection is respectfully traversed.

1) Szczesniewski, US 6358870 B1 and the present patent application, are both directed to the creation of synthetic silicates, not the melting of glass. These are two completely different processes and this perspective should always be kept in the forefront of the discussion which follows, because what is normal, conventional and good practice for the creation of synthetic silicates, does not necessarily apply to the practice of glass melting, and vice-versa.

2) The silicates are created by a solid-solid reaction at a much lower temperature (850 degrees C) than the melting of glass (1,450 degrees C). In the latter case there is a liquid-solid interaction (melting) of different raw materials, where the great majority of them have not as yet been reacted, or decarbonized.

3) The purpose of using glass cullet in the creation of the synthetic silicates is not to save costs in the use of raw materials, nor is it used as a fluxing agent, which is normally used in a furnace to promote the fusing of a compound or to prevent the formation of oxides. In the claimed invention **the use of glass cullet is to provide a mechanism which will increase the efficiency of the heat transfer process to the interior of a pellet and thus create oxides, which will allow them to readily combine with the provided sand in order to produce the synthetic silicates.** Thus, in the claimed process the glass cullet is never used to promote fusing and **never melts**, so its presence has nothing to do with its use in the glassmaking art. **In this case the presence of glass cullet helps to markedly increase the speed of reaction in the creation of the synthetic silicate, as compared with not using the cullet.**

4) Regarding the third paragraph at page 3 of the Office Action Summary, the Examiner comments that: "Bair discloses in the formation of glass by conventional methods, a dry mixture of sand, **fluxes** such as soda ash and lime and enough of glass (about 20 or 25%) as cullet to give desired **melting** properties to the mixture, is heated in pots or tanks to melt it down to fluid state (column 1, line 24-29). Therefore, it would have been obvious to one of ordinary skill in the art to add cullet which contains the molecular systems taught by Szczesniewski to raw material in process of making glass to save on cost of raw material".

However, nowhere in the present patent application is it disclosed or mentioned that the application concerns a "process of making glass", as the last line of the Examiners quote states, nor that the cullet was added as a means to save the cost of raw material. The present application discloses and claims a process of making a synthetic silicate using *glass cullet* as a *heat transfer agent*, but never as a fluxing agent.

5) If the synthetic silicates are combined with other raw materials, such as sand and metal oxides in order to conform to a specific glass formula, then the melting of this mixture will be significantly more efficient, more productive (up to 60%) and consume less energy (up to 40%) than the normal process presently used for melting a raw glass formula, whether it is in used in granular or pelletized form. However, the foregoing process for glassmaking is set in a totally different context than the claimed process for producing synthetic silicates. In the glass making process, glass cullet can be used to save on the costs of raw materials, but the claimed invention does not recite a process for the making of glass.

6) The mechanism described herein of heat transfer by the glass cullet is something that was not previously known by those of ordinary skill in the art of melting glass, either in granular or in pelletized form. **In the melting of glass, the cullet acts as a fluxing agent that reduces the melting temperature of the glass formula and saves energy due to the fact that it is a material in which there is no CO<sub>2</sub> content because it has previously been melted to that amorphous state. It is never used as a mechanism for heat transfer to the center of the core of any pelletized glass formula for the purpose of more rapidly extracting the CO<sub>2</sub> from the raw materials.** This is never considered because in a pellet that handles a complete glass formula, the sole function of the glass cullet is to reduce the temperature of the onset of the liquid state of the raw materials that are being used. This, of course, saves costs of raw materials and saves energy (and costs) in the melting of the glass formula. However, no one who is versed or skilled in the art of glass making, would introduce glass cullet in a glass formula pellet expecting that it would never melt, yet at the same time assist in the glass melting process, nor make reference to the opening of pores in the pellet and the heat transfer mechanism that is referred to in the subject patent application.

7) In view of the foregoing arguments and the claim amendments, it is evident that there are significant distinctions and meaningful differences between the processes used for creating synthetic silicates that can be later used as more efficient raw materials for the glass melting process, from the process of melting glass. The claimed invention recites a process of creating synthetic silicates **and not to glass melting, thus**

**glass cullet is never used as a fluxing agent, nor as a cost saving element, but as a mechanism that transfers heat to the core of the pellet which has been created to produce the desired synthetic silicates, based on a solid-solid reaction of the raw materials that are being handled.** Applicant's discovery that the use of glass cullet in the manufacture of synthetic silicates and the benefits to be derived by such use are completely and entirely *unexpected*, which is the *hallmark* of unobviousness.

In conclusion, the claimed method for preparing pre-reacted synthetic batches as recited in amended claims 1 and 2 and claims 5 and 6 distinguish over the combination of the prior art applied by the Examiner, since it employs an unobvious sequence of steps, which are neither taught nor suggested by the art. Accordingly, the Examiner has failed to establish a prima facie case of obviousness under 35 USC § 103(a). Since the rejection has been overcome, its withdrawal is respectfully solicited.

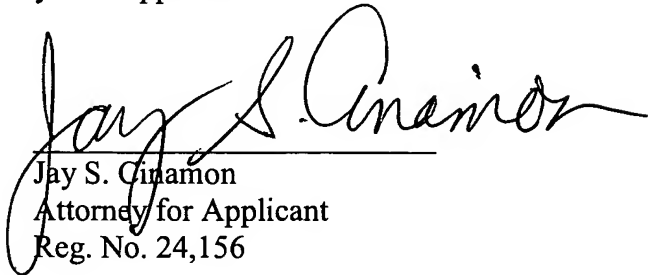
The issuance of a Notice of Allowance is respectfully solicited.

Please charge any fees which may be due and which have not been submitted herewith to our Deposit Account No. 01-0035.

Respectfully submitted,

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